..:: Introduction ::..

In our first experiences with a VPSD motherboard, we were highly enthused with the plethora of features offered up by the board for the price, along with the performance and shear stability. VIA's Platform Solutions Division is quickly moving up the ranks in the high performance market, and since it is a product of VIA, they are always first out with the latest chipset support. Our last look at a VPSD board was the P4X266A powered P4PA. Since then, VIA has released two new chipsets, one which never really made it into full production, that being the P4X333. Advances made by VIA allowed them to manufacturer a slightly newer version of the P4X333 offering features such as AGP 8X, and support for DDR400 RAM, along with several other features we will be taking a look at a little later. Today, we'll be taking a good look at VIA's own P4X400 offering, the P4PB 400. Can this board live up to the reputation of the P4PA? Let's find out!

..:: Specifications ::..

Processor

- Intel® Pentium® 4, Celeron® Processor
- 533/400MHz Front Side Bus

Chipset

- VIA Apollo P4X400 North Bridge
- VT8235 South Bridge

Memory

- 3 DDR333 DIMM sockets
- Up to 3GB Memory

Expansion Slots

- 1 AGP 8X/4X slot (1.5V Support)
- 5 PCI slots
- 1 CNR

Onboard IDE

- 2 x ATA133/100 Connectors

Onboard Audio

- VIA VT1616 6 Channel AC'97 CODEC

Onboard IEEE 1394

- VIA VT6306 IEEE 1394 (Optional)

Onboard I/O

- **2 USB 2**.0/1.1 Connectors for 4 Additional Ports
- 2 IEEE 1394 Ports (Optional)
- 1 Audio pin-header for SPDIF (Optical & RCA), Rear, Sub/Center
- CD Audio-in Connector
- AUX-in Connector
- Voice Modem Connector
- IR Connector
- Wake-on-LAN, Wake-on-Ring
- CPU/Power/Sys FAN
- 20-pin ATX Power, 4-pin ATX AUX 12V Power
- 1 x Buzzer
- 1 DIP Switch for 100/133/Auto FSB Setting
- System Intrusion Connector
- Smart Card Reader Connector

Onboard I/O

- 1 PS2 mouse Port
- 1 PS2 keyboard Port
- 1 RJ 45 100/10Mb LAN Port
- 2 USB 2.0/1.1 Ports
- 2 Serial Ports
- 1 Parallel Port
- 3 Audio Jacks: line-out, line-in and mic-in
- 1 Game/MIDI Port

BIOS

- Award BIOS, STR, ACPI, WfM 2.0, DMI 2.0
- 2/4Mbit Flash Memory

Form Factor

- ATX (4 layers)
- 30.5cm x 22.5cm

..:: Package ::..

The VIA P4PB 400 comes along with a good package full of goodies for your usage. The package includes several items, those being one ATA-66/100/133 ribbon cable, one floppy cable, an expansion bracket with two USB 2.0 and two IEEE 1394 ports, an expansion bracket with an Optical and RCA output for digital sound, along with two more 1/8” mini-plugs, one for rear left and right speakers and the other for the center channel and subwoofer, a quick installation guide in eight languages, the driver CD, and of course the user manual. I would like to see VIA include a second ATA-66/100/133 cable for users who prefer their CD-ROM’s and Hard Drives to be located on separate cables, and for users with more than two IDE devices.

The quick installation guide is the same as we saw with the P4PA, a very nice addition to any motherboard package. This guide is basically are for the first time builder who isn’t 100% sure on how to go about assembling all of the components for their PC. It is well written and should be useful to all computer building novices. The quick installation guide comes along in eight different languages, such as English, German, French, Italian, etc.

The user manual is very well written and laid out. The majority of the manual is very detailed, however when it comes to the included software, the manual only briefly covers what each does, and nothing more. I’d like to see a little more information being placed in the manual for users who do not feel comfortable enough to go gung ho and figure it out on their own. The

manual's text is large and easily readable, along with large, high quality images to back the textual areas that they cover.

Last up for the package we have the driver / software disc. The disc includes the VIA 4-in-1 chipset drivers, the Enhance AGP 8x driver, the audio driver, LAN driver, USB 2.0 driver, and the ITE Smart Card Reader. The CD also contains VIA's FliteDeck software, which consists of several useful programs and has a logo that reminds me of Star Wars E1, heh. There are four programs included in the FliteDeck software package, FlashPort, SysProbe, Jet Stream, and Mission Control. FlashPort allows you to flash your BIOS within the confines of a Windows based environment. I don't particularly care for flashing the BIOS whilst in Windows, but I found this software to work fine with no issues. SysProbe allows you to take a look at the various information dealing with your PC, from the BIOS to the Cache. Mission Control is one of the most useful programs included in the FliteDeck software suite. Mission Control allows you to monitor the current state of your PC, from temperatures to voltages to hard drive space, Mission Control monitors it all. It can also be configured to sound when a temperature goes above a set level, for example. Last up, we have a program all you overclockers out there will enjoy, JetStream. JetStream allows you to overclock your PC through a Windows environment. Here, you can monitor your CPU temperature, speed, RAM speed, and FSB speed, along with various voltages. This will definitely come in handy for those looking to push that P4 to its limit.

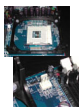
..:: Feature Set ::..

One area we loved with the P4PA was the amount of features it brought with it for the price. The P4PB 400 doesn't drop the ball when it comes to this area, in fact, the P4PB 400 packs even **m ore**
features onto the PCB than did the P4PA. Exactly what does the P4PB 400 offer? Well, does

Onboard 10/100 Ethernet Controller, 6-Channel Audio, IEEE 1394, USB 2.0, a Smart Card Reader, AGP 8x, support for 400MHz / 533MHz FSB Pentium 4's, ATA/133, and of course support for DDR333 & DDR400 RAM all packed onto a blue PCB sound good to you? The only thing missing would be the option for onboard RAID. Never fear however, as VIA has plans for another version of the P4PB that offers onboard RAID, along with even more features than the P4PB 400. Now that we know exactly what the P4PB 400 offers, let's take a closer look at the specifications for these various features to see what they offer, among other things.

..:: Layout: Socket Area ::..

As has become the norm with our motherboard reviews, we'll be taking a detailed trip around the P4PB 400 to take a look at the board layout, and for possible criticisms of the design. We won't be encountering too many of these along the way, as right from the get go we can see that the P4PB 400 has a well thought out design. Nearly 100 percent of the headers and other items on the board are placed in easily accessible areas, much like what we saw with the P4PA. Let us begin our trip around the P4PB 400 in the usual area, the processor socket.



The processor socket itself is located along the top edge of the board, away from any other major items on the board such as the DIMM slots. If you take a look toward the top right hand corner of where the processor mounting mechanism is, you'll notice the three-pin CPU fan header. This seems to be a very popular place to position the CPU fan header, and for good reason. This positioning is great; there are no major items around the fan header, so it will be easily accessible in all situations. The only item that is in the vicinity is a tiny 22uF capacitor; however it will not pose a negative effect upon the ability to get at the fan header if at all necessary.

The heavy majority of electrical items on the P4PB 400 are located along the left hand side of the processor socket area. Such items include a large amount of both 1000uF and 2200uF capacitors with varying voltages, along with several other electronic bits and pieces. Here, we can also see that VIA has chosen to opt with a three-phase power solution to keep the juice flowing to that Pentium 4. If you have never understood the whole two-phase, three-phase power talk, I highly recommend checking out this article over at Overclockers Australia. It is a no-nonsense explanation of what three-phase power is, and what it does.

..:: Layout: Northbridge Area ::..

The VT8754 Northbridge is covered by the decorative silver heatsink emblazed with the P4X400 logo. When we took a look at the P4PA, we found that there was no thermal tape or thermal compound used in-between the Northbridge and heatsink, however with the P4PB 400 VIA has corrected this issue by utilizing thermal tape for heat transfer. With the FSB and RAM speeds rising, thermal transfer material is becoming more necessary with today's Northbridge's. The Northbridge heatsink is held on by two white, spring loaded pins. The Northbridge area is fairly clean, with only one small 1000uF capacitor located off to its right side.

Just off to the left of the VT8754 Northbridge, we come across the remainder of the main set of capacitors and other miscellaneous electrical items. Here, we also come across the 12V ATX power connector, and the main ATX power connector, along with another three-pin fan power connector. This is the one and only area of the board that I don't particularly care for. I'd much prefer to see these ATX power connectors be located along the top portion of the board as we saw with the P4PA. Arranging the ATX connectors in this area can cause airflow disruption over the processor, and although heat isn't as large an issue with the newer Pentium 4's as it is with

the AthlonXP's, it is still important enough to warrant that notice be taken. The three-pin fan connector is in a bit of an odd position, sandwiched in-between the smaller 12V ATX power connector and a 22uF capacitor. When all of the power connectors are plugged in and the AGP slot is filled, this little fan connector might be a little tough to get to, however it shouldn't be too much an issue as most users will prefer to use the third three-pin power connector in the lower right corner of the board.

..:: Layout: Expansion Slots ::..

As we continue our trek around the P4PB 400, we come across a very busy section of the board, the expansion slot area. The expansion slot setup will please both enthusiasts and OEM's alike with one AGP 4x / 8x slot, five PCI slots, and one CNR slot. This setup should be more than enough for everyone, especially considering the amount of features already built into the board, however there are more than likely a few out there who might prefer to see a sixth PCI slot added alongside, or in place of, the CNR slot. The AGP slot comes outfitted with the usual white retention mechanism that will hold that graphics card in place in case you ever decide to take the PC to the local LAN event, or you just happen to be doing a little rearranging around the house, etc.

The VIA VT6105M 10/100 LAN Controller is positioned to the immediate left of the AGP slot. The next set of items we comes across are located to the left of the 10/100 LAN Controller, and they consist of the onboard audio headers and plug-ins. If we take a look directly below the yellow I/O audio connector we come across an eleven-pin header. This is where you will plug in the external audio bracket if you plan on using more than two channel audio, or if you plan on utilizing the digital audio connections that are also provided by that bracket. This is fairly good positioning, however I'd prefer to see it a little bit lower on the board to avoid having to run the lengthy cable from the bracket over, or under the graphics card. Below this header, we come across the usual black, yellow, and green connectors. The black connector is for CD audio in,

the yellow connector is for the auxiliary input, and the green connector is for the modem audio connection. In-between these connectors, we also come across the tiny chip that powers our onboard audio, the VIA VT1616 chip.

The last main items we come across in the expansion area are all located more towards the bottom of the board. One of these items would be the ITE IT8705F chip, which handles the monitoring of system temperature readings, fan speed readings, voltages, etc. We also come across the system BIOS, located directly below the ITE system monitoring chip. If we take a look between PCI slot three and four, we'll see the Smart Card Reader header. If you plan on using your Smart Card Reader, this is the place to plug it in. Between PCI slot four and five, we have the onboard infrared connector. Lastly, we come across one of the two red jumpers. This jumper, located to the right of the CNR slot, controls whether or not the onboard audio codec is enabled or disabled.

..:: Layout: Southbridge & Memory Area ::..

Yet another busy area of the board is our next stop, the Southbridge area. Here we can see several headers, plug-ins, and other bits and pieces. You can really tell some thought went into this board just by looking at this area. We see that all of the headers for external USB, IEEE 1394, and other connectors are all lined up along the bottom of the board. This is great positioning for all of these items, they are out of the way, and organized magnificently. From left to right, we have the two-pin Wake-On-Ring header, the three-pin Wake-On-LAN header, two white IEEE 1394 headers, two yellow USB headers, and the last of the three-pin power connectors.